I Claim:

1. In an optoelectronic distance measuring method including projecting at least one ray bundle transmitted by a measuring head of a measuring device on a surface of an object to be measured as a dot-shaped measuring spot at various locations on a circumferential line of a geometric figure, wherein the reflected ray bundle projects through a projection unit the respective measuring spot onto an optoelectronic transducer unit of the measuring head, and evaluating signals produced by the optoelectronic transducer unit in an evaluating unit, the improvement comprising deflecting the reflected ray bundle by the projection unit of the measuring head in such a way that the measuring spot projected on the optoelectronic transducer unit is independent of a position of rotation of the measuring spot projected onto the surface relative to an optical center axis of the measuring head.

2. The method according to claim 1, comprising synchronously adapting the evaluation computations to the measuring location, wherein, within a framework of a calibration for any position of rotation of the projected measuring spot, a function between distance and measuring signal is determined

separately and the function is activated during the measuring operation in dependence on the position of rotation.

3. The method according to claim 2, wherein the optical axes of all transmitted ray bundles extend parallel to each other independently of the position of rotation.

4. The method according to claim 1, wherein the method is used for determining a surface inclination, further comprising carrying out a measured value processing for determining the surface inclination by computing a compensation plane through all points of a measured circumferential line, and computing an angle of inclination and an orientation of the compensation plane.

5. The method according to claim 1, wherein the method is used for determining a mean distance value, comprising scanning the circumferential line and carrying out a measured value processing for determining the mean distance through the scanned circumferential line.

6. The method according to claim 1, wherein the method is used for determining locations of edges or the like, comprising carrying out a measured value processing in such a way that the

circumferential line is scanned, points of intersection of the scanned circumferential line with a scanned contour are determined by evaluating a distance change on a circle line, computing a straight compensation line through the points of intersection, and computing a distance of the straight compensation line to the center axis of the measuring circle formed by the circle line and computing the position of rotation of the measuring circle.

7. The method according to claim 1, wherein the method is used for determining gap widths, wherein the gap widths are smaller than a diameter of measuring circles, comprising carrying out a measured value processing in such a way that four points of intersection of the measuring circle with two edges of a gap are determined by evaluating a distance change on the generated measuring circle, by computing two straight compensation lines through the four points of intersection and computing the distance between the two straight compensation lines.

8. The method according to claim 1, wherein the method is used for determining sight lines or contour lines on an object, comprising carrying out a measured value processing in such a way that predefined distance changing patterns are recognized, an

axis of symmetry of the patterns and a spatial position relative to a center axis of the scanned geometric figure are computed.

9. A distance measuring device for carrying out an optoelectronic distance measuring method, the device comprising a frame and at least one measuring head, and at least one evaluating unit and a control unit connected to one another through signal lines, wherein the measuring head comprises means for producing, transmitting and projecting at least one ray bundle along a circumferential line of a predeterminable geometric figure on an object, and means for reproducing the ray bundle reflected by the object on at least one optoelectronic transducer unit, wherein the means for projecting the transmitted ray bundle along the circumferential line of the predeterminable figure and the means for reproducing the reflected ray bundle on the optoelectronic transducer unit are configured such that system-inherent reproduction errors are essentially minimized or eliminated.

10. The device according to claim 9, wherein the means for projecting the transmitted ray bundle along the circumferential line of the predeterminable and the means for reproducing the reflected ray bundle on the optoelectronic transducer unit are

selected so as to essentially eliminate system-inherent reproduction errors in measurements according to the triangulation principle.

11. The device according to claim 9, wherein the means for projecting and the means for reproducing each comprise at least one planar parallel plate.

12. The device according to claim 9, wherein the means for projecting the transmitted ray bundle and the means for projecting the reflected ray bundle are at least partially comprised of a single optical part or structural component.

13. The device according to claim 12, comprising means for adjusting the optical parts or components.